

- *Semo clypeatus*, Buchanan White, Ent. Mo. Mag., vol. 15, p. 217.

Pale ochreous-brown, marked with darker on the head, scutellum, and abdomen. Length, 4–5 mm.

*Hab.* Otago.

- ✓○ *Agandecca annectens*, Buchanan White, Ent. Mo. Mag., vol. 15, p. 218.

Reddish. Tegmina yellowish, the veins marked with whitish; commissure of clavus, from the middle to the apex, piceous. Length, 5 mm.

*Hab.* Otago.

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✓○ *Ricania australis*, Walker, Cat. Homop. in B.M., p. 430 (*Pochazia*).

Ferruginous. Tegmina slightly tawny, the fore border near the base testaceous, margin and two imperfect bands brown; wings margined with brown. Length, 5 mm.

*Hab.* Auckland, probably introduced from Australia.

- *Cona cælata*, Buchanan White, Ent. Mo. Mag., vol. 15, p. 218.

Pale-brown, variegated with darker; keels of the head, pronotum, and scutellum generally red. Tegmina hyaline, more or less clouded with brown. Length, 4–6 mm.

*Hab.* Auckland.

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ART. XXII.—*Notes on New Zealand Starfishes.*

By H. FARQUHAR.

Communicated by E. Lukins.

[*Read before the Nelson Philosophical Society, 30th August, 1897.*]

***Asterias calamaria*, Gray.**

This is a very variable species, and reminds one of the variations of *A. rubens*, as described by Professor Bell, Ann. and Mag. Nat. Hist. (6), vii., p. 469 (1891). There are at least two well-marked forms—a large, coarse variety with stout rays, covered with thick skin, having short, stout, truncated, irregular spines on the abactinal surface, often in groups of three or four closely packed together, each group surrounded by a wreath of pedicellariæ at the base, the rows of spines often interrupted; and a more delicate variety, with long, thin, tapering, flexible rays covered with thin skin, the

abactinal spines comparatively long, fine, pointed, single, and arranged in regular longitudinal rows on the rays, with a few smaller spines here and there between the rows, each spine with a narrow wreath of pedicellariæ at the base. The infra-marginal plates, which are adjacent to the adambulacral plates, bear a double row of spines, which becomes triple towards the base of the arms, while the supramarginal plates only have a single spine on every other plate. Specimens of this variety when taken curl the rays backwards over the disc, and usually remain thus in a bunched-up basket shape. The latter seems to be the prevailing form at Nelson, while the coarse variety is abundant in Wellington Harbour. When I received a few young examples only of the finer variety from Mr. Lukins, of Nelson, I supposed that they belonged to a distinct species, but the receipt of a larger series, some of them full grown, proved their identity. Intermediate forms connecting the two varieties are not rare. Young individuals of this species always have a number of small arms budding out between the larger ones, or a group of small ones on one side of the disc, like that figured by M. De Loriol, *Mém. Soc. Phys. Genève*, xxix. (1885), pl. vii., fig. 2. They appear to have only a small number of arms at first (4 to 7), and the others are added afterwards. The coarse variety, with which I am familiar in life at Wellington, is never found here under stones (except very young individuals), but always on stones or rocks, while Mr. Lukins reports that he finds the finer variety at Nelson plentiful under stones at low water. This explains a statement made by Mr. Etheridge which puzzled me for some time, that at Lord Howe Island "scarcely a stone of any size can be overturned but what examples of this species are to be seen clinging to it." ("Lord Howe Island," p. 39 (1889).)

I have received a giant specimen of this species from Mr. Lukins, collected by Mr. Donald Sutherland at Milford Sound. It has ten arms, and measures 20 in. between the extremities of the arms.

### **Stichaster insignis**, Farquhar.

When collecting this species I noticed several times that there appeared to be a difference between specimens from Point Jerningham and those taken at Highwater Islet, in Evans's Bay. I therefore collected some specimens at Point Jerningham, and placed them in a glass jar, and then I went on to Highwater Islet and collected specimens there, which I placed in another jar. The difference was now seen to be very distinct. The colour of all the specimens from Point Jerningham was clear red or pink above and white or yellowish beneath, while those from Highwater Islet were

darker and usually tinged with purple or brown on the dorsal surface and brown beneath, and the rays not so stout as those from Point Jerningham. It is remarkable and extremely interesting to find two varieties of this little species at two stations only a mile and a quarter apart. I think we may conclude from this that the young are not carried far from their place of birth by the currents, and that this form is probably capable of great variations under different conditions of life.

If one is only alert enough there is always something new to be observed on the sea-shore which will add to our stock of knowledge, and, although perhaps apparently insignificant, may presently tend to the solution of important biological problems. The study of the variations and habits of our littoral marine animals, their distribution in time and space, and their relations to one another, to the animals of other regions, and to those which inhabited the New Zealand seas in former times, is extremely interesting and important, and presents a large field for the future investigations of New Zealand naturalists; and, although the would-be generalisers of to-day (able to explain everything according to their own pet theories) despise those who occupy themselves with the minutiae of natural history, we must always remember that it is necessary to study nature in detail to get a true general view of the whole.

**Stichaster suteri, var. lævigatus, Hutton.**

Mr. E. Lukins, who recently visited the southern islands in the Government steamer "Hinemoa," brought three little starfishes from Carnley Harbour, Auckland Islands, which I at once pronounced to be specimens of *Stichaster suteri*, Loriol. When I examined them, however, I found that they had no spines on the abactinal surface. I have suspected for some time that the starfish from Dunedin, identified by Professor Hutton as *Asterias rupicola* (Trans. N.Z. Inst., vol. xi., p. 343), may have been a specimen of *S. suteri*, and Mr. Lukins's re-discovery of this variety at the Auckland Islands has confirmed my suspicion. I have recently been able to compare specimens of *S. suteri* with a specimen of *Asterias rupicola* from Kerguelen, and I find that they are quite distinct, the Kerguelen form being a true *Asterias*, as described by Professor Verrill (Bull. U.S. Nat. Mus., vol. i., p. 71, 1876). *A. rupicola* does not therefore belong to the New Zealand fauna.

The specimens brought from the Auckland Islands by Mr. Lukins agree in every respect with specimens of *S. suteri*, except in having no spines on the dorsal surface. Professor Hutton, however, obtained one specimen from the same locality with "a row of spines along the back and traces of a lateral

row on each side" (Trans. N.Z. Inst., vol. xi., p. 343). This variety suggests the question, Why is the armature on the abactinal plates of this species not developed, or only very feebly developed, at the Auckland Islands, in the cold water of the Antarctic drift, while it is always well developed on the shores of the main-land? A specimen found at Stewart Island by Mr. H. B. Kirk is intermediate. The specimens collected by Mr. Lukins are in the Nelson Museum.

**Cribrella lukinsii**, n. sp.

R = 23 mm.; r = 7 mm.

Rays five in number, rounded, rigid, inflated at the base and tapering rapidly to the extremity, which is rather finely pointed. Breadth of a ray near the base, 9.5 mm.; height, 9 mm. Disc small, not clearly marked off from the bases of the rays. The papular areas are small, but fairly well defined, with one to three pores in each. The abactinal and lateral plates are small and irregular in form, broader than long; they bear compact groups of very minute, uniform, delicate spinelets with denticulate tips. On the lateral surface of the rays the spinelets form somewhat irregular, double, transverse rows. The armature of the adambulacral plates consists of a single row of six to eight spinelets (sometimes rather irregularly placed, and double without) similar to those on the abactinal plates, but somewhat larger, increasing slightly in size towards the furrow, one minute smooth spinelet placed high in the furrow. The madreporite is small and indistinct, situated at the summit of one of the interbrachial arcs; it bears a few scattered extremely minute spinelets. In the only specimen examined there is a very large compact group of spinelets in the centre of the disc, apparently covering the dorso-central plate. The colour is very dark-grey, almost black, with a brownish tinge, slightly paler beneath.

I cannot give a figure at present, for the only specimen available was found by Mr. E. Lukins on a high cliff at the entrance of Carnley Harbour, Auckland Islands, where it had been thrown by the waves, and the spines are somewhat displaced. It had not been long exposed, however, for when Mr. Lukins brought it to me in spirits the tube-feet were not decayed or dried up.

Type specimen in the Nelson Museum.

**Cribrella ornata**, Perrier.

I have what I take to be a specimen of this species, which was found by Mr. A. S. Danby at the Snares. Unfortunately, it has been roughly dried, and is, in consequence, much distorted, so that I cannot figure it. The colour is deep reddish-orange above and pale-yellow beneath.

Mr. Sladen gives for the distribution of this species, "Off New Zealand and Campbell Islands, and extending to the Cape of Good Hope" ("Challenger" Report," vol. xxx., p. 541). The original type specimens were collected by Count Castelnau at the Cape of Good Hope, and the naturalists of the "Challenger" Expedition found the species in the same locality. Through the kindness of Mr. A. Reischek, Director of the Linz Museum, I am able to give here M. Perrier's description of this species, from the "Annales des Sciences Naturelles," xii., p. 251 (1869): "Cinq bas arrondis, s'amincissant graduellement du bas vers l'extrémité, obtus au sommet; quatre fois aussi longs à partir du centre que le rayon du disque, quatre fois également aussi longs que leur largeur à la base. Surface dorsale tout entière couverte de papilles granuleuses qui sont disposées en rangs serrés sur les ossicules du réseau et circonscrivent par conséquent des espaces nus, dans lesquels se trouvent plusieurs pores tentaculaires. Plaque madreporique située au bord de la partie declive de l'intervalle de deux bras, c'est-à-dire vers le milieu du rayon du disque, et dont les collines saillantes rayonnent en se dichotomisant à partir d'un point excentrique. Ses piquants des sillons ambulacraires sont cylindriques, assez gros, tronqués au sommet et disposés sur deux rangs. En dehors on voit deux rangées longitudinales des groupes de papilles. Diamètre, 75 millimètres environ."

#### **Cribrella compacta**, Sladen.

The starfish which was identified by Professor Hutton as *C. occulata* (Ech. of N.Z., p. 7) is, I believe, a specimen of Mr. Sladen's species *C. compacta*, the type of which was dredged up by the naturalists of the "Challenger" Expedition off the west coast. Professor Hutton's specimen, which is in the Colonial Museum, is unfortunately glued to a piece of board, so that I cannot examine the actinal surface, except a small portion of the extremity of a ray. I have little doubt, however, that it belongs to Mr. Sladen's species.

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